

REMARKS

Certified Copies of Priority Documents.

As required by the office, submitted herewith are Certified Copies of priority documents:
Japanese Application Number 2002-319160 filed on October 31, 2002, Japanese Application Number 2002-319161 filed on October 31, 2002, Japanese Application Number 2002-319162 filed on October 31, 2002, Japanese Application Number 2002-319163 filed on October 31, 2002, Japanese Application Number 2003-025254 filed on January 31, 2003, Japanese Application Number 2003-025255 filed on January 31, 2003, Japanese Application Number 2003-025256 filed on January 31, 2003, Japanese Application Number 2003-025257 filed on January 31, 2003, Japanese Application Number 2003-025258 filed on January 31, 2003, Japanese Application Number 2003-054856 filed on February 28, 2003, Japanese Application Number 2003-054857 filed on February 28, 2003, Japanese Application Number 2003-054858 filed on February 28, 2003, Japanese Application Number 2003-097349 filed on March 31, 2003, and Japanese Application Number 2003-135249 filed on May 14, 2003,.

Drawings

Applicant requests that the Office to acknowledge in the Office Action Summary the Drawing Office review of the drawings.

Claim Rejections – 35 USC § 103

The Office has quoted the statute from 35 USC 103(a), which is referenced herein. The Office has rejected claim 1-14 as being unpatentable over US Patent No. 6,406,079, both by itself, and in view of other references. Applicant has carefully considered the Office's rejections and respectfully submits that the amended claims, as supported by the arguments herein, are distinguishable from the cited reference.

According to the MPEP §2143.01, "[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found in either the references themselves or in the knowledge generally available to one of ordinary skill in the art."

A useful presentation for the proper standard for determining obviousness under 35 USC §103(a) can be illustrated as follows:

1. Determining the scope and contents of the prior art;
2. Ascertaining the differences between the prior art and the claims at issue;
3. Resolving the level of ordinary skill in the pertinent art; and
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

The Office rejected Claims 1-10, 12, and 13 under 35 USC 103(a) as being unpatentable over the '079 reference. The Applicant has carefully reviewed the cited reference and respectfully disagrees. First, the applicant would like to note that the '079 reference and the present invention are commonly assigned, and indeed, that two of the inventors of the present invention are listed as inventors of the '079 reference. The '079 reference, while bearing structural similarities to the present invention is configured for a specific function, namely as an "impact absorbing automobile bumper". The present invention, in contrast, is an impact-absorbing member that is optimized for use in a broad environmental temperature range.

Specifically, with regard to claim 1, the Office alleges that the present invention is obvious in light of the '079 reference. The Office correctly states that no ratio of resins is disclosed in the '079 reference. The '079 reference instead discloses the use of certain resins or blends thereof. (*See* Tamada et al. , Col. 5 ll. 23-30) Indeed, a bumper component consisting of a single, pure resin would be within the scope of the '079 reference's disclosure. As discussed in the present application, subsequent experience has taught that some formulae are preferable to others for certain conditions. As is also described in the present application, the degree of stress

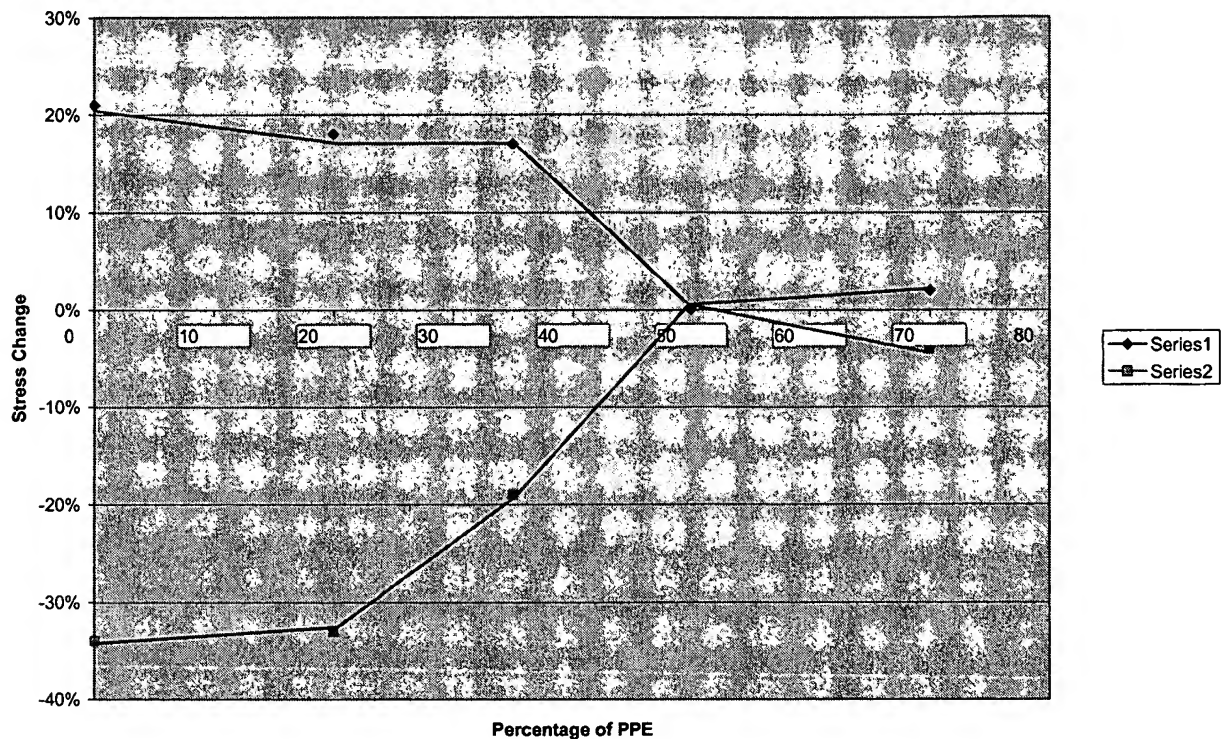
change is an important indicator of successful impact absorption. Experimentation, a sampling of the results of which is detailed in the specification of the present invention, revealed the existence of a specific range of ratios that provide significantly improved stress change values.

Table 1 of the present invention is reproduced below.

	Resin mixing ratio PP/modified PPE	Stress change		Izod impact value (kg/cm ²)
		-15°C	60°C	
Comparative Example 1	10/0	+21%	-34%	-
Comparative Example 2	8/2	+18%	-33%	18
Example 1	65/35	+17%	-19%	18
Example 2	5/5	0%	-2%	22
Example 3	3/7	+2%	-4%	20

The applicant respectfully draws the Office's attention the dramatic change in stress change values occurring when approximately 35 percent of the resin is modified PPE, an amorphous resin. For greater ease of viewing, the following graph presents the same data, where Series 1 represents Stress Change at -15° C and Series 2 represents Stress change at 60°C.

Graph of Table 1



Differences in stress change values for Comparative Examples 1 and 2, containing 0 and 20% PPE, respectively, are far more significant than those of the Examples 1-3. The stress change, especially at cold temperatures is drastically reduced with the introduction of 35% PPE. As noted in the background, preferably this figure would be less than -10%. Further graphic illustration of the properties of the present invention is illustrated in Figures 9-11 of the present invention. Figures 10 and 11 illustrate the compression distortion characteristics of polyphenylene ether (PPE) resin and Polypropylene (PP), respectively. In both resins, one can clearly discern the significant temperature induced differences in the force required to deform each resin. In contrast, the 50:50 blend of PPE and PP, illustrated in Figure 9 shows less temperature dependence than either of the pure resins. One, intuitively, would assume that the temperature dependence would be an average of the dependence shown by each of the two resins. The experimental results, clearly, contradict this assumption. The results of this blending are thus counter intuitive and unexpected. Simply stated, while thermoplastics formed from, in the claimed invention, a 35-75% fraction of amorphous resin in a polyolefin base would be expected

to produce an improvement over pure polyolefin resins, it was unexpected, however, that such blends would produce the significantly improved stress change reduction over both resins, and thus allowing the optimal function of impact absorbent components exposed to a broad range of temperatures, in one embodiment from -30° to 60° C. Such an unexpected result militates against the existence of a suggestion to modify the cited reference so as to combine resins as claimed. In the absence of such a suggestion, the claimed invention would not have been obvious to one skilled in the art at the time of the invention. For at least the reasons stated herein, the Applicant submits that claim 1 is patentably distinct over the cited reference.

As claims 2-4 are dependant from claim 1, at least for those reasons described in detail above, the applicant respectfully submits that these claims are, likewise, not unpatentable in light of the cited reference.

Claims 5 though independent, and its dependant claim 6, claim the same element discussed at length in regard to claim 1. The applicant respectfully submits that, at least for the reasons discussed above, these claims are not unpatentable in light of the cited reference.

Regarding Claims 7 and 8, the Office alleges that the claimed invention is obvious in light of the cited reference. The applicant respectfully submits that the claimed invention is distinguishable from the cited reference. As the Office admits, the '079 reference does not disclose the introduction of a first resin having a flexural modulus of not greater than $2,000 \text{ Kg/cm}^2$, or as in claim 8, of less than 200 Kg/cm^2 . In contrast, the claimed invention uses a combination of such a resin, in combination with a polyolefin resin. Contrary to the allegation of the Office, it is the polyolefin resin, which has, according to one embodiment of the claimed invention, a flexural modulus of $9,000$ to $22,000 \text{ Kg/cm}^2$. As described in paragraph 48 of the specification of the claimed invention, the applicant describes how the introduction of a resin of such a low flexural modulus effects the temperature dependence of the overall thermoplastic. This decrease in thermal dependency, as discussed above, is unexpected. The applicant respectfully submits that,

at least for those reasons stated above, the claimed invention is not obvious in light of the cited references.

As claims 9-13 are dependant from claim 7, at least for those reasons presented in the applicant's discussion of that claim, the applicant respectfully submits that the claim is not unpatentable in light of the cited reference.

The Office rejected Claims 11 and 14 under 35 USC 103(a) as being unpatentable over the '079 reference in view of US Patent No. 5,806,889. The Applicant has carefully reviewed the cited references and respectfully disagrees. Claim 11 is dependant from claim 7, and claim 14, while independent itself claims a first resin having a flexural modulus of not greater than 2,000 Kg/cm². The '889 reference in no way supplies the discussion of flexural modulus being less than 2,000 Kg/cm², absent in the '079 reference. In further contrast to the claimed invention the '889 reference does not disclose the combination of more than one resin.

The applicant, in light of the above arguments, respectfully requests that the Office's rejection of claims 1-14 be withdrawn.

Applicant believes the above remarks to be fully responsive to the Office Action, thereby placing this application in condition for allowance. No new matter is added. Applicant requests speedy reconsideration, and further requests that Office contact its attorney by telephone, facsimile, or email for quickest resolution, if there are any remaining issues.

Respectfully submitted,



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